

U. S. Department of  
Homeland Security

United States  
Coast Guard



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**DEPARTMENT OF HOMELAND SECURITY**

**U. S. COAST GUARD**

**STATEMENT OF**

**STATEMENT OF MR. JEFFREY P. HIGH**

**ON THE**

**U.S. COAST GUARD'S MARITIME DOMAIN AWARENESS EFFORTS**

**BEFORE THE**

**SUBCOMMITTEE ON COAST GUARD & MARITIME TRANSPORTATION**

**COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE**

**U.S. HOUSE OF REPRESENTATIVES**

**OCTOBER 6, 2004**

DEPARTMENT OF HOMELAND SECURITY  
UNITED STATES COAST GUARD  
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Good morning Mr. Chairman and distinguished Members of the Committee. I am Jeff High, Director of the Coast Guard's Maritime Domain Awareness Program Integration Office. It is a pleasure to be here today to update you on our efforts to enhance awareness in the maritime domain.

Prior to the attacks of September 11, 2001, the Coast Guard's primary focus within the maritime domain had been on safety, law enforcement, the environment, and vessel traffic management. While we recognized security as an issue in our September 1999 Report to Congress on the Marine Transportation System, most national and international efforts within the maritime domain revolved around facilitating the safe and efficient movement of waterborne commerce, the interdiction of narcotics and illegal migrants, and trade compliance. Even before September 11, 2001, we realized that the maritime domain was one of the most valuable and vulnerable components of our national security, our marine transportation system, and our economic prosperity. While many ports and waterways have critical strategic military value, the commercial perspective is equally impressive, and the challenge is significant:

- Over 95% of overseas trade enters through U.S. seaports;
- Our seaports account for 2 billion tons and \$800 billion of domestic and international freight each year;
- Approximately 9 million sea containers enter the U.S. via our seaports each year;
- 26,000 miles of commercially navigable waterways serving 361 U.S. ports;
- Seaborne shipment of approximately 3.3 billion barrels of oil each year;
- 6 million cruise ship passengers travel each year from U.S. ports;
- Ferry systems transport 180 million passengers annually;
- Waterways support 110,000 commercial fishing vessels, contributing \$111 billion to state economies;
- 78 million Americans engaged in recreational boating;
- Some 8,100 foreign vessels making 50,000 U.S. port calls each year; and
- Domestic and international trade is expected to double in next 20 years.

Certainly, a terrorist attack incident against our marine transportation system has the potential to inflict a disastrous impact on global shipping, international trade, and the world economy. Since September 11, 2001, the Coast Guard, with the help of Congress and the Administration, has greatly expanded our maritime security capabilities and activities.

The world's oceans are global thoroughfares. A cooperative international approach involving partnerships of nations, navies, coast guards, law-enforcement agencies, and commercial shipping interests is essential – with all parties collaborating to confront broadly defined threats to our common and interdependent maritime security.

We are committed to working with local, state, national and international agencies and organizations as one team engaged in one fight. Having one department, the Department of Homeland Security (DHS), responsible for homeland security has helped make America more secure today.

Before proceeding, I think it would be helpful to clarify what is meant by the term “Maritime Domain Awareness” or MDA. MDA is the effective understanding of anything associated with the global maritime environment that could adversely impact the security, safety, economy or environment of the United States.

This definition was validated during the National MDA Summit held this past May. The Summit was co-chaired by the Deputy Secretary of Homeland Security, Admiral James Loy, and Assistant Secretary of Defense for Homeland Defense, the Honorable Paul McHale, and included approximately 30 interagency leaders across the government, including the Commandant of the Coast Guard, the Chief of Naval Operations, and leaders of the intelligence community, law enforcement, and virtually all agencies with maritime interests. MDA broadly supplements the maritime safety and security requirements of the varied stakeholders.

Enhanced Maritime Domain Awareness will be attained by leveraging and building on existing and far-ranging capabilities. Many of these capabilities reside in the disciplines of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR). However, MDA will require innovative efforts in other areas. Among these new efforts will be unprecedented information sharing with at the federal, state and local levels, as well as with our international partners and the public and commercial sectors of the broadly based global maritime community.

### **The Role of the Coast Guard in Maritime Domain Awareness**

As the lead federal agency for maritime homeland security, the Coast Guard has the primary responsibility within DHS to protect the U.S. maritime domain and our marine transportation system, and deny their use and exploitation by terrorists. The first and foremost strategy element of the Coast Guard’s *Maritime Strategy for Homeland Security* is to “Increase Maritime Domain Awareness.”

The U.S. Coast Guard also safeguards against a broad array of other maritime related threats - drug smuggling, illegal migration, international organized crime, natural resource exploitation, danger to those conducting commerce and other maritime operations, the spread of infectious diseases, and environmental degradation. Furthermore, the Coast Guard has an existing intelligence program, a command-and-control (C2) structure, and associated communications that can be built upon to improve coordination and integration of MDA capabilities.

MDA will also play a major contributing role as the Coast Guard implements many of the provisions of the Maritime Transportation Security Acts of 2002 and 2004, such as a National Transportation Security Plan; vulnerability assessments of vessels and facilities; area, vessel and facility security plans; incident response plans for vessels and facilities; and personnel background checks prior to issuing transportation security cards to individuals required to enter designated secure areas.

The Coast Guard's leadership in coordinating national efforts to enhance MDA capability does not require the exercise of command over other agencies' intelligence systems, surveillance and sensor capabilities, or communications as a condition for these assets to participate and contribute to MDA. Nor does this leadership role mean the Coast Guard intends to replicate these existing capabilities. Rather, its mission set, existing port and coastal resources, expertise, and unique status - a military service, a law-enforcement agency, a member of the Intelligence Community, and a regulator/facilitator of the maritime industry - allow the Coast Guard to interact with all members of the MDA community. The Coast Guard is well qualified to lead the effort to integrate and coordinate the development of a national MDA capabilities.

MDA is the critical enabler that allows the Coast Guard and its partners to work together to achieve their common objectives against a vast array of threats confronting the United States, while sustaining the free flow of commerce and maintaining individual freedoms.

### **National-level Leadership**

The demand for assertive and comprehensive planning, leadership and multi-agency coordination by the Coast Guard has greatly increased. Efficient and effective efforts require more formal structure and reduced ad-hoc activity. In recognition of this, the Coast Guard established a Maritime Domain Awareness Program Integration Office (PIO) with the following strategic goals:

- Lead collaborative comprehensive planning efforts ... Coast Guard, Department of Homeland Security, National, International
- Create forums and relationships to enhance understanding, provide direction, and optimize use of resources ... public and private sector stakeholders
- Transform and integrate existing and future capabilities ... sensors, platforms, information systems, command and control
- Facilitate and align efforts to collect, analyze, and disseminate timely information
- Obtain resources ... provide interim capabilities and sponsor future capabilities

In addition, the Commandant established an MDA Steering Committee (MDASC), which includes Navy liaison members, to facilitate discussion and coordination of the activities of the MDA Program Integration Office.

MDA has received high level interest and support within the Administration. The Coast Guard and Navy have been jointly tasked with enhancing MDA. We are improving our coordination with the Navy and other maritime stakeholders within the federal government. A senior-level MDA Senior Steering Group (SSG) has recently been formed to develop a coordinated approach for all MDA-related activities. The SSG is co-chaired by Deputy Secretary James Loy (DHS) and the Honorable Paul McHale (DOD) and includes senior representatives from interested maritime stakeholders. The SSG will enhance coordination of all MDA-related initiatives to achieve more effective results. Specific responsibilities include:

- Creating a National MDA Plan;
- Designing the enterprise architecture for shared situational awareness; and
- Engaging other partners (state / local / industry / international)

The SSG conducted its first meeting on September 24, 2004. The SSG established seven working groups and assigned individual member agencies to support these working groups.

### **The Process of Awareness**

Comprehensive understanding of the maritime domain involves specific knowledge of vessels, generic port infrastructures, transshipment facilities, maritime approaches, waterways, anchorages, fishing grounds, rookeries, choke-points, shipping lanes, and transit corridors, as well as a diverse array of critical infrastructure - from offshore oil platforms in the Gulf of Mexico to the Statue of Liberty. This awareness must become increasingly comprehensive as potential threats approach the U.S. coast, ports, and inland waterways. We must know what is “normal” and what is “not normal” throughout the marine transportation system and maritime domain – from our inland waterways and ports to the high seas – so we can best assess potential risks.

Effective MDA involves identifying threats as soon as possible and far enough away from our coastline to appropriately respond to eliminate or mitigate the risk. MDA includes the collection, analysis and dissemination of information and intelligence to facilitate operational or tactical responses. It is a dynamic system of people, technology, processes, and doctrine that feeds the operational commanders and field unit response and interdiction assets, and in turn, receives feedback from them on situational awareness.

Building a national MDA capabilities requires both a process and a system. In the most fundamental terms, the MDA process consists of receiving maritime data, information, and intelligence, both classified and unclassified; fusing, correlating, analyzing, and interpreting the collected material; and disseminating effective assessments, actionable intelligence, and relevant knowledge to appropriate federal, state, local, private, and international stakeholders in a usable format. The system required to facilitate this process is an enterprise architecture that integrates the C4ISR activities of the United States and its international partners. The system includes cooperation and information exchange with and among the public, private and commercial sectors at all levels.

### **The Common Operational Picture**

The blending of various assessments, actionable intelligence, and our knowledge of maritime activities form a Common Operational Picture (COP). The COP is a display of critical information shared by multiple interests. The COP provides a geospatial display, with referenced overlays and data enhancements. The COP environment may include distributed data processing, data exchange, collaboration tools, and communications capabilities. It will include but is not limited to geographic information systems data, assets, activities and elements; planning data; readiness data; intelligence, reconnaissance and surveillance data; imagery; and environmental data. It will contain advanced display technologies and decision support tools including software intelligent agents with anomaly detection capabilities.

The COP will be shared by various partners within the maritime domain. A filtered view of the COP will be shared with civilian law enforcement and other government agencies that do not hold Department of Defense (DOD) clearances but do handle Sensitive But Unclassified (SBU)

data. It also can be shared with allies and coalition partners at the appropriate level of security access. The COP will facilitate collaborative operational planning at every echelon: local, regional, national and international.

### **Enhancing our Capability**

Some of the capabilities necessary to enhance MDA are already in place or are being built, including some of the systems the Chairman asked the Coast Guard to address in this hearing. Some will be developed in the near future. Necessary actions to implement MDA include web-enabling the various agencies involved; establishing open architecture systems and standards to allow rapid upgrades and integration; building common data bases to widely share information; implementing standard user interfaces to access information; and establishing web portals that will allow users to pull data from common servers.

Building MDA will require monitoring vessels, cargo, people and specified areas of interest in the global maritime environment. It will include maintaining and accessing data on vessels, facilities and infrastructure. It will require collecting, analyzing and disseminating critical information to decision makers to facilitate effective understanding of the global environment. All technologies are being explored to achieve these goals. Some technologies, like Automatic Identification System (AIS), are mature and can be quickly exploited, while others, like the ability to detect anomalies in vessel behavior, require a great deal of investment and research.

AIS, in accordance with an internationally accepted standard for equipment, is currently being carried aboard thousands of ships worldwide. The Coast Guard currently has AIS capability in the Vessel Traffic Service (VTS) ports of New York, New Orleans, Berwick Bay, Houston/Galveston, Los Angeles/ Long Beach, Prince William Sound, and Sault Ste. Marie. Equipment to provide AIS capability in San Francisco, Puget Sound, and Port Arthur is planned for installation by the end of the calendar year. There are also selected areas of the coastline, including Alaska and the Gulf of Mexico, where we are pursuing accelerated AIS deployment which will be incorporated into our Nationwide AIS major acquisition project, an initiative to achieve AIS capability throughout the U.S.

We are actively engaged in options to leverage AIS capability beyond a terrestrial-based infrastructure. We recently contracted to install an AIS receiver on board a commercial satellite to receive and forward AIS signals from space. We expect the satellite to be launched in 2005. With this capability, the Coast Guard will be able to collect and process AIS data well beyond the coast of the United States in a cost effective and timely fashion.

We have also entered into an agreement with the National Oceanic and Atmospheric Administration (NOAA) to install AIS receivers on offshore data buoys. The NOAA National Data Buoy Center's (NDBC) Marine Observations Network is a fleet of environmental monitoring buoys and coastal stations located through out the U.S. coastal and ocean zones. These operational buoys and stations can be found in major estuaries and through out the EEZ, including Alaska and Hawaii. Under a Memorandum of Agreement with the NDBC, the Coast Guard is sponsoring the augmentation of these buoys and coastal stations with AIS systems and the integration of the stations into the USCG AIS network.

AIS data received from marine vessels (identification, position, and other voyage-related data) that are within radio range of these NDBC stations will be transmitted to the NDBC AIS Data Assembly Center and processed and transmitted on the USCG and the National AIS Infrastructure. AIS systems on NDBC platforms will significantly enhance our National AIS Infrastructure and the Common Operational Picture (COP). Plans are to eventually convert all 70 buoys and selected coastal and estuarine stations. Initial deployment of AIS receivers will occur in early 2005, as these offshore buoys and stations are scheduled for regular servicing.

NOAA is actively involved with the Coast Guard in the international and national AIS standards setting activities. These national and international standards coupled with the AIS two-way communications system offers opportunities to NOAA as well. With the development of a NOAA Voluntary Observing Ship (VOS) automated data collection system, the AIS enabled NDBC buoys and coastal stations will be capable of receiving environmental measurement data from vessels that are participating in the VOS program. The data captured through AIS Data Link will be transmitted to the NDBC Data Assembly Center for quality control processing and release to the NOAA operational Data Stream. With additional modest technical development, NOAA will be able to transmit environmental information, safety and regulatory - related messages and warnings to ships within radio range of NDBC stations through the AIS Vessel Data Link.

Our communication and offshore asset recapitalization efforts are essential to the Coast Guard's ability to provide higher levels of maritime homeland security and enhanced maritime domain awareness. The Rescue 21 and Deepwater recapitalization projects will provide high capacity, integrated, interoperable communications systems that can rapidly transmit information to the COP and provide complete communications coverage. Information from Rescue 21 will help complete Deepwater's COP and will play a critical role in allowing commanders to make effective risk-based decisions when directing and coordinating homeland security and other large operations in ports, waterways, and coastal areas. With asset tracking, complete coverage and an integrated, state-of-the market communications network, the Coast Guard will be better positioned to identify and quickly respond to threats to maritime safety and security.

In the interim, we have taken action to provide more immediate capabilities to our operational commanders and interagency partners. The Coast Guard has already established systems to track vessel movements within U.S. waters through the National Vessel Movement Center and Inland River Vessel Movement Center and is working to expand these capabilities. Additional major ongoing initiatives include short and long-range vessel tracking requirements and capabilities, joint use Sector Command Centers with the Navy in Norfolk and San Diego, collocating our Sector Command Center in Charleston with the Justice Department funded Charleston Harbor Operations Center, and our Sector Command Center and Surveillance Test bed in Miami. Coast Guard Intelligence efforts to improve MDA include Intelligence Coordination Center (ICC) and Coastwatch, establishing Maritime Intelligence Fusion Centers, and Field Intelligence Support Teams that operate in our larger ports. The Coast Guard is also monitoring external initiatives, such as other agency funded grants and research and development initiatives, to ensure linkages are maintained and best practices are captured.

Vessel tracking efforts focus principally on technology, personnel, information exchange, and supporting business processes and doctrine to support the persistent surveillance of all vessels along the maritime margins of the U.S. coastline, including inland waters, as well as passenger and cargo vessels greater than 65' in length out to 2,000 nm, to assess potential threats. There is

also a need for more global tracking with partnering Governments to better identify and analyze vessel behavior based on historical trends and characterization of normal shipping patterns/routes. This track history will facilitate a more comprehensive risk evaluation of Vessels of Interest (VOIs) that depart from known habits or expected behaviors, and will support critical port operations and boarding teams in carrying out their responsibilities.

Notice of Arrival (NOA) data indicate that on an average day, more than 1,000 vessels over 300 GT approach the U.S. from foreign ports carrying goods and passengers, while another 350 merchant ships are already present in our ports. An additional untold number of vessels traverse our Exclusive Economic Zone (EEZ) on coastwise trade bound for non-U.S. ports, and are not required to report their course/destination to U.S. authorities since they do not plan to arrive at a U.S. port. Overall, an estimated 5,000 commercial vessels are within 2,000 nm of the U.S. at any time.

It is much more difficult to detect, monitor and intercept targets which do not abide by existing agreements. To handle those targets we have developed and are continuing to develop and improve our capabilities to attain a persistent maritime awareness capability. The Coast Guard is pursuing a wide variety of means to track cooperative and potentially non-cooperative vessels calling on, or operating near, the United States.

We are working closely with our partners in the Department of Defense, Department of Homeland Security and elsewhere, to evaluate sensors and platforms that will enhance our ability to detect, identify and track vessels. The Coast Guard is actively engaged in identifying a system or mix of systems to provide a wide area surveillance capability. Included in this mix are long-range radar systems, unmanned aerial vehicles (UAVs), High Altitude Long Endurance (HALE) and Lighter than Air (LTA) airships. Existing capabilities within the government domain will be integrated into a final solution.

The Coast Guard is also leading efforts at the International Maritime Organization (IMO) to develop an international requirement for long range tracking to provide enhanced visibility of these vessels for flag, port and coastal states. At the same time, we are evaluating options to obtain information on vessel positions and intentions through other sources, and cooperative arrangements with the maritime industry.

Extending our surveillance and detection capabilities will provide more time to investigate potential threats and generate an appropriate and timely response. We will continue to develop improved systems and capabilities with the intent of increasing the amount of coverage as we grow from securing specific locations of interest to areas of total coverage.

## **Conclusion**

Enhancing MDA will require a significant investment in time, personnel, and other resources to develop and maintain systems, procedures and relationships to limit, prevent, and apprehend those who would use the world maritime environment to break the law or commit terrorism.

It is crucial for the members of the MDA community, whether federal, state, or local governments, or partners in private industry, to work together to achieve the full scope of capability that permits the effective understanding of anything in the global maritime



environment that could adversely affect our security, safety, economy, or environment. MDA is the critical enabler that will allow our National strategies to succeed in their objectives of prevention, protection, response, and recovery against a vast array of threats confronting the safety and security of the United States, while sustaining the free flow of commerce and maintaining our freedoms.

Thank you for the opportunity to discuss the Coast Guard's efforts to enhance Maritime Domain Awareness. We look forward to working with Congress to create an effective, integrated, collaborative worldwide maritime intelligence network that provides persistent Maritime Domain Awareness to safeguard our Nation. I will be happy to answer any questions you may have.